4.0 PUBLIC INVOLVEMENT

4.1 WORKING SESSIONS

Working sessions with those having a partnership interest were planned to coordinate proposed actions and discuss sponsor assurance issues as well as study status.

4.1.1 First Session

The first study session was held 31 May 2000 at Morgan, Lewis, & Bochius, LLP, 200 S. Biscayne Boulevard, Miami, Florida for discussing disposal area alternatives receiving public comments. This session was concurrent with the MRC-Dredging Working Group meeting.

4.1.2 Subsequent Sessions

Subsequent sessions continue in the form of public meetings that track the dredging status, including the DMMP/EIS. These sessions are monthly meetings of the MRC-Dredging Working Group.

4.2 PERIODIC COLLABORATION

Periodic collaboration with public interests to establish a partnership in the study process was initiated during the first working session. Periodic collaboration has occurred with the study status being conveyed to the Miami River Commission Dredging Subcommittee on a frequent basis. A chronology of periodic collaboration regarding the Miami River dredging project is included in Attachment C. This is a collection of meeting minutes of the dredging subcommittee.

4.3 PUBLIC COORDINATION OF THE DRAFT REPORT

Public coordination of the draft document was initiated in March 2002. Comments received during the public coordination period are included as Attachment K.

5.0 ENVIRONMENTAL STUDIES

5.1 NEPA DOCUMENTATION

The Environmental Impact Statement for this DMMP is included as Attachment D.

5.2 ECONOMIC ANALYSIS

An economic assessment is required to determine the feasibility of continuing the maintenance dredging of the overall project. The gathering, analysis and interpretation of data used in this analysis are based on the Miami River Economic Study 2000, prepared by J. Kenneth Lipner, Ph.D., on behalf of the Miami River Commission. It resulted from surveys of businesses along the river conducted in cooperation with the Beacon Council and City of Miami with a response rate of about 50 percent. Also acknowledged is the help and participation of the Miami River Marine Group. Excerpts from the report's executive summary posted on the Miami River Commission's web site are as follows:

- Most of Florida's maritime trade with 29 nations and territories in the Caribbean Basin goes through the Miami River. With an estimated $4 billion in cargo – more than double 1991 levels – the Miami River vies with the Port of Tampa as the equivalent of Florida's fourth largest port in dollar value.

- The Miami River provides nearly 20 percent of the nation's $22.1 billion in trade with the Caribbean Basin.

- The Miami River's properties are assessed at $1.3 billion, paying nearly $20 million in taxes a year for city and county services.

- Marine-related river businesses responding to the survey reported $216 million in revenues.

- The Miami River serves nearly 100 ports of call in the region, up from 62 in 1991.

- Jobs have tripled in the last 10 years among reporting marine-related industries – from 400 to 1,200. This is a $35 million payroll, averaging $30,000 per job.

- The Caribbean Basin Trade Initiative passed in 1999 is expected to increase trade dramatically.

- The Miami River stands to gain because it is the only nearby American shallow-draft port that can serve these smaller nations as free markets develop.

- Hotels on the Miami River served more than 496,000 overnight visitors last year. With a three-day average stay, those stays generated $100 million a year.

- The new $70 million river dredging project – the river's first in 70 years – will restore the channel to its allotted depth, reduce pollutants, and prepare the Miami River corridor for growing trade demand.

Table 8 is a summary of businesses and employers along the Miami River. The table includes a break down by industry of the number of employees, payroll amounts, and revenues.

Table 8. Businesses and Employers along the Miami River

Industry	FT Employees	Payroll	Revenues
Commercial shipping	577	$15.9 million	$92.0 million
Commercial marine sales/service	367	$8.8 million	$10.7 million
Commercial fishing	36	$1.9 million	$2.2 million
Recreational marine	216	$6.6 million	$35.1 million
Entertainment/Hospitality	748	$12.5 million	$68.7 million
TOTAL	1,941	$66.8 million	$285.8 million

Source: Dr. Kenneth Lipner, Miami River Commission, 2001.

Table 9 is a summary of significant Miami River trading partners.

Table 9. Significant Miami River Trading Partners
Export Trade from United States 1995-1999

Country	1999 Exports	1995 Exports	Dollar Change	Percent Change
Dominican Republic	$4.1 billion	$3.0 billion	$1.1 billion	+57%
Costa Rica	$2.4 billion	$1.7 billion	$645 million	+37%
Honduras	$2.4 billion	$1.3 billion	$1.1 billion	+83%
Guatemala	$1.8 billion	$1.7 billion	$166 million	+10%
Panama	$1.7 billion	$1.4 billion	$352 million	+25%
Bahamas	$842 million	$661 million	$181 million	+33%
Haiti	$614 million	$550 million	$64 million	+10%

Source: U.S. Commerce Department. Represents total trade with United States.

Additional, detailed economic analysis will be provided upon acceptance and release of the final Miami River Economic Study 2000, by the MRC.

5.2.1 Current Cargo Movements

Table 10 presents amplifying information on recent cargo movements in the Miami River. As shown in Table 10, Corps of Engineers records for calendar year 1999 (January-December 1999) indicate a total of 344,000 short tons of cargo were handled. Petroleum and petroleum products comprised approximately 10.5 percent of all cargo traffic. Gasoline and jet fuel represented a combined total of 5.3 percent of all petroleum products recorded in FY 1999. Residual fuel oil was the primary petroleum product, accounting for 74.5 percent of total petroleum product. Chemicals and related products comprised approximately 4.7 percent of all cargo traffic. Perfumes, cleansers, and plastics constituted a significant portion of this cargo. Inedible crude materials, excluding fuel, accounted for approximately 3.8 percent of all tonnage and consisted mainly of lumber products, soil, and rock material. Primary manufactured goods (consisting largely of paper, lime, cement, and glass) represented approximately 11.3 percent of all tonnage, and food and farm products (consisting largely of agricultural products) accounted for roughly 38 percent. Manufactured equipment, machinery, and products (with textile products forming a significant portion) comprised approximately 28.2 percent of all cargo traffic, and unknown or unclassified products accounted for the remaining 3.2 percent of cargo.

Data for the five-year period from 1995-1999 are presented in Table 11 for the following commodity groups: coal; petroleum and petroleum products; chemicals and related products; crude materials, inedible (except fuels); primary manufactured goods; food and farm products; manufactured equipment, machinery, and products; and unknown or not elsewhere classified products.

Table 12. Trip and Draft of Vessels for Calendar Year 1999

Draft (ft)	Foreign Total Inbound	Foreign Total Outbound	Domestic Total Inbound	Domestic Total Outbound
18	18	20		
15	0	1		
14	3	4		
13	227	4287		
12	96	151		
11	94	96		
10	114	85		
9	56	51	2	2
8	40	9	499	424
7	44	30	434	508
6	194	189	1	1
Total	**886**	**923**	**936**	**935**

Source: Waterborne Commerce of the United States, Part 1- Waterways and Harbors Atlantic Coast, Department of the Army, Corps of Engineers, Institute for Water Resource, Calendar Year 1999.

5.2.2 Without Project Conditions

Without the project, contaminated sediments would continue to be discharged into Biscayne Bay, an Outstanding Florida Water, an aquatic preserve, a National Park (at the southern reach), and a significant environmental resource. This DMMP documents the toxicity of the sediments, and the EIS and its accompanying Fish and Wildlife Coordination Act Report document adverse effects of Miami River sediments on the Biscayne Bay ecosystem.

It appears reasonable to conclude that the State of Florida and the Federal Government would not allow the unabated discharge of contaminated sediments from the Miami River to continue to degrade Biscayne Bay. If the contaminated sediments are not removed from the river, the closure of the Miami River as a port facility may be the only recourse for protecting the integrity of the Biscayne Bay ecosystem. The economic assets documented in this section would be severely curtailed.

6.0 MANAGEMENT OPTIONS

6.1 CONSTRAINTS

6.1.1 Financial

Financial constraints are a concern; whether local fundings for securing and preparing an interim upland disposal area and/or local cost share for the entire project or whether adequate Federal O&M

Table 10. Miami River Waterborne Commerce for Calendar Year 1999

Cargo	Thousand Short Tons	Percentage of Total Cargo
Coal	0	0.00%
Petroleum/Petroleum Products	36	10.47%
Chemicals and Related Products	16	4.65%
Crude Materials, Inedible (Except Fuels)	13	3.78%
Primary Manufactured Goods	39	11.34%
Food and Farm Products	132	38.37%
Manufactured Equipment, Machinery and Products	97	28.20%
Unknown or Not Elsewhere Classified	11	3.20%
Total	344	100.00%

Source: Waterborne Commerce of the United States, Part 1-Waterways and Harbors Resource, Calendar Year 1999.

Table 11. Miami River Waterborne Commerce 1995-1999
(Thousand Short Tons)

Calendar Year	Coal	Petroleum/ Petroleum Products	Chemicals and Related	Crude Materials (Except Fuel)	Primary Manufac-tured Goods	Food and Farm Products	Equipment, Machinery and Products	Unknown/ Not Elsewhere Classified
1995	2	222	62	44	97	188	255	13
1996	0	17	38	27	118	166	213	13
1997	1	11	43	54	118	178	306	12
1998	0	13	30	33	64	175	175	16
1999	0	36	16	13	39	132	97	11
Cpd Annual Growth Rt 1995-1999	-100%	-30.50%	-23.73%	-21.64%	-16.66%	-6.83%	-17.58%	-3.29%

Source: Waterborne Commerce of the United States, Part 1- Waterways and Harbors Atlantic Coast, Department of the Army, Corps of Engineers, Institute for Water Resource, Calendar Years 1995-1999.

As shown in Table 10, food and farm products, manufactured equipment, machinery, and products, and primary manufactured goods accounted for approximately 78 percent of river cargo traffic in FY 1999. As such, the trends for these commodity groups are important in determining future needs for the river. Food and farm products, which represent approximately 38.4 percent of all cargo movements, experienced an annual growth rate of approximately –6.8 percent. Manufactured equipment, machinery, and parts, representing 28.2 percent of all cargo movements, exhibited an annual growth rate of –17.6 percent. Primary manufactured goods experienced an annual growth rate of approximately –16.7 percent. In summary, growth rate analyses reveal overall negative growth in commodity movements in the Miami River.

The drafts of vessels calling at the Miami River in calendar year 1999 are presented in Table 12.

monies are available to perform the maintenance dredging. Much of the financing is legislative "adds."

6.1.2 Environmental

Constraints associated with environmental aspects of the Miami River dredging project include sediment resuspension during the dredging of the river; traffic, odor and noise associated with the interim upland staging area, and final disposal of dredged material. Short-term environmental concerns include successful coordination with USFWS concerning threatened and endangered species and WQC from DEP.

6.1.3 Technical

Technical constraints are associated with the actual dredging of the river and maintaining navigation, physically moving the material from the dredge to the interim upland staging area, material handling at the interim site, and final disposal of the dredged material.

6.1.4 Legislative

Legislative concerns are primarily related to financing the project. The large capital cost for this project requires annual legislative "adds" at the local, state, and Federal levels.

6.1.5 Administrative

The local sponsor, Miami-Dade County, has yet to have its Board of County Commissioners fully endorse the project. The county's concerns have resulted in the Corps' decision to issue an RFP in order to provide the best value in dredging the Miami River and disposing of the sediments in an environmentally acceptable manner. Future concerns will be incorporated into the plans and specifications and will be the responsibility of the selected contractor to address fully and properly.

6.1.6 Real Estate

The local sponsor has worked to identify and secure, through purchase or lease, various land and easements to provide the necessary interim staging area. Federal funds cannot be used to cover these costs.

On October 3, 2000, the Board of County Commissioners of Miami-Dade County (the Board) gave conditional approval for a former parking lot located between NW 33rd and NW 36th Streets and NW 35th and NW 37th Avenues to be utilized as the interim staging area for the dredged material (Resolution No. R-1031-00). Figure 4 is the proposed interim staging area located at the parking lot.

In addition to the eight and one half-acre County-owned site located at the parking lot, the County has leased a 6,880 sq ft site located in the middle of the south one acre of the Jai-Alai parking lot to accomplish the rectangular configuration required by the USACE for the interim staging area.

Since the interim staging area does not have direct access to the river, an interim berthing site to dock the barges that will hold the dredged material until it is pumped to the staging area is required. The local sponsor has leased approximate 25,000 sq ft of land plus 430 linear feet of Miami riverfront

seawall and bulkhead located at 3700 NW North River Drive, Miami to be used by the USACE for dockage and landside operations to implement the Miami River Dredging Project.

The subject property is located in close proximity to the interim staging area. Additionally, it affords adequate dockage space for the barges that will carry the dredged material, and provides direct access to arterial roadways, a rail spur, and the proposed interim staging area via an underground culvert.

6.2 SEDIMENT REDUCTION

Sedimentation within the channel areas of Miami River necessitates dredging to keep the channel open for safe and efficient navigation. Sediment reduction focuses on reducing the amount of sediment settling within the navigation channel. The sediment reduction strategies can be classified into four main types: Watershed Sediment Reduction Controls, Channel Design Optimization, Advanced Maintenance Dredging, and Structural Modification.

6.2.1 Watershed Sediment Reduction Controls

Watershed Sediment Reduction Controls are specific strategies to reduce the amount of sediment reaching a waterbody. Techniques include the implementation of Best Management Practices and Total Maximum Daily Loads. These techniques are designed to reduce the volume of sediment-laden runoff from agricultural and urban lands, redirecting runoff to collection basins or other pervious surfaces where infiltration to the ground water can occur, and protecting and reinforcing steep slopes and stream banks.

6.2.2 Channel Design Optimization

Channel Design Optimization involves decreasing the sedimentation rate within the channel by re-engineering the channel. Straightening channels, called channel realignment, tends to increase the water velocity within the channel. The higher water velocity entrains a larger percent of material suspended in the water column and decreases the amount of material settling out and accumulating in the channel. Channel design optimization strategies are examined during initial project design and as part of the routine maintenance procedures. There are no plans for channel realignment at this time.

6.2.3 Advanced Maintenance Dredging

Advanced Maintenance Dredging has been used as a short-term means of reducing dredging cost and frequency by dredging below the desired channel depth. Sediment settling in the channel will eventually fill the channel to the authorized depth, and the time between maintenance and demobilization cycles of dredging equipment and reduces the frequency of dredging, which may reduce any short-term, localized environmental impacts associated with more frequent dredging. Current plans call for dredging for allowable overdepth, which will be a pay quantity to 17 ft. There are no plans to deepen the river beyond existing limestone rock or perform advance maintenance dredging.

6.2.4 Structural Modifications

Structural Modifications are physical constructs designed to keep sediment moving through (instead of settling in) a channel or berth area or to prevent sediment from entering the channel or berth area. Typical structures include flow training dikes and sills, scour jets, gates and curtains, pneumatic

barriers, and sedimentation basins. There are currently no plans for any of these features for the Miami River.

6.3 BENEFICIAL USES

Historical beneficial uses were considered in the 1993 report, *Alternatives for the Dredging and Disposal of Sediment from the Miami Harbor (Miami River) Project, Florida.* Future beneficial uses that result from the RFP process have yet to be determined at this time.

6.4 CONFINED DISPOSAL FACILITIES

A confined disposal facility (CDF) involves the construction of dikes or other retention structures lined with impermeable material to contain dredged material isolating it from the environment. Dredged material can be placed within the CDF through a variety of methods. Monitoring is typically conducted periodically in areas adjacent to the CDF to ensure safe containment of the dredged material. Excess surface water is clarified by ponding, treated to meet applicable effluent standards, and released. Active or passive consolidation techniques may be employed to maximize the usable capacity of the CDF. In the case of Miami River dredged material, the material will be processed and dewatered, and then off-loaded and transported to an approved landfill for final disposal.

At the request of the local sponsor, the interim staging area cannot be utilized for conventional diking with open-air drying. Therefore, any plan that utilizes this interim upland staging area must confine the material (e.g., geotubes, etc.). However, conventional diking and open-air drying can be used in the Miami River dredging project if the contractor provides another upland site.

7.0 FORMULATING THE RECOMMENDED PLAN

It is not established that a single option or alternative site will be able to meet all the dredged material management needs of the Miami River. Uncertainties exist regarding actual dredging needs, the future quality of sediment, and the cost effectiveness and efficiency of developing management options. The challenge is how best to combine the various options to meet the short- and long-term needs of the Miami River in an economical and environmentally acceptable manner. The more traditional USACE approach of a fixed plan based strictly on proven solutions and lowest cost may not fulfill this challenge. The plan must be flexible enough to respond to change. Since the timeframe agreed to for this DMMP is 20 years, some of the decisions in implementing evolving management strategies can be programmed for the future.

A number of different factors must be taken into account when combining the various options into a comprehensive plan. These factors provide the rationale for developing the recommended plan for the DMMP:

- Environmental Protection/Enhancement
- Availability
- Reliability
- Flexibility
- Capacity and Project Life

- Economic Benefits and Costs

Environmental Protection/Enhancement: The primary concern related to dredged material management stems from the potential environmental effects that may be caused by the dredging and handling of material to be dredged. Accordingly, the protection and, when possible, the enhancement of the environment is the primary consideration in developing the DMMP.

To assess fully the potential impacts of each of the options that have been under consideration for the DMMP, an Environmental Impact Statement (EIS) has been prepared (Attachment D). It evaluates, to the extent that is possible given currently available data, the potential beneficial and adverse environmental, cultural, and social impacts of the options that may comprise the recommended action.

Availability: This factor addresses the time required to implement the various options used in the development of the DMMP. Implementing options that need long planning, engineering, and construction time are less favorable than options that can be implemented relatively quickly.

Reliability: An important consideration in the development and implementation of the DMMP is the reliability of the options. Investments in development, both public and private are generally based on long-term forecasts of cost levels and stability. Therefore, for a DMMP to be successful from a business perspective, it must be sufficiently reliable to allow for timely and cost effective maintenance as needed.

In addition to other factors described in this section such as cost and capacity, reliability also relates to other, intrinsic, factors. For example, reliability also is dependent upon the ability of the region to forecast and actively address future potential dredged material management needs so that they can be met before crisis conditions are encountered. The management process by which future needs are identified and decisions made to accommodate them in a timely manner are fundamental to the successful implementation of the DMMP.

Some options or methods of managing dredged material have been in existence in the region for several decades while others are at preliminary stages of investigation. While the DMMP may consider and even recommend options with little proven reliability, it must also address the risk, uncertainty, and potential contingencies of such options in the event they are not implemented as fully as anticipated.

Flexibility: Similar to availability and reliability, flexibility is a factor desirable in the development of the DMMP. For purposes of this comparison, it is the ability to change readily from one option to another, as needed. Implementation of some options can be varied, as needed, during their operation to expand to accept more or less material. Other options require considerable capital investment during their construction and consequently require a known, typically large, volume of material to be placed or processed at the site to be economically feasible.

Capacity and Project Life: Options that can manage substantial volumes of the anticipated future dredging needs for as long as possible are preferable to short period or otherwise limited needs. Under-projecting the yearly dredging need has caused substantial disruptions in the ability to maintain and expand port facilities in other areas of the county. According to EC 1165-2-200, a dredged material management plan should allow for unimpeded maintenance of a channel for at least

20 years while the maximum planing horizon for channel deepening studies is 50 years (EP 1165-2-1). As no channel deepening studies/projects are currently underway for the Miami River, the 20-year project life is preferable.

Economic Benefits and Cost: Economic benefits and costs are a major consideration in the long-term maintenance and viability of the Miami River. Historically, the cost of nearshore or ocean disposal of dredged material (the predominant management method used in this region prior to the implementation of the revised Green Book testing protocols) was negligible. There has been no Federal dredging of the Miami River since 1934. Current dredging costs directly related to Miami River are estimated at approximately $71.7 million. Several factors must be considered in the economic evaluation. First, the costs developed for the different plans considered have been for the cost of disposal because dredging and transport costs are different for each project. For purposes of cost sharing, however, the entire dredging, transport and disposal costs of different options must be evaluated. Another consideration that must be factored into this evaluation is changing benefits.

It has been 70 years since the construction of the Miami River Federal Project, with no maintenance dredging having been performed in the interim. If it is assumed that the project life is an additional 50 years, the annualized cost of the proposed project is approximately $1.4 million per year. This compares favorably with costs for other ports along the Atlantic coast of Florida that receive annual maintenance. Annual costs for those ports range generally from $1.5 million to $3.5 million.

7.1 FORMULATION OF THE DMMP

This DMMP is the result of a multi-year, multi-disciplinary effort. It is currently a working draft, which must be reviewed by the stakeholders, local, state, and Federal agencies. A working draft of the EIS is also to be reviewed and coordinated with those cooperative agencies under NEPA.

Input is necessary from the USACE and local sponsor to evaluate the alternatives and reach a consensus on those actions that should be part of the plan. This can be accomplished by assigning a preference to each alternative based on its potential to beneficially use dredged material, or safely contain it. The following rankings are typically used to indicate the preference of each option when formulating the DMMP:

Preferred Option*:* Options that beneficially use dredged material, often with a positive impact on the estuary.

Fall-Back Option: Options that can safely manage material and not pose an unacceptable risk to the estuary when properly sited and utilized.

Uncertain Option: Options that require more analysis regarding technical or economic feasibility but warrant continued consideration because of their potential to use dredged material beneficially.

Least Preferred Option: Options that have either low potential for beneficial use and/or a potential for unacceptable risk to the estuary.

Non-Preferred Option: Options that have potentially unacceptable impacts or are technically/economically infeasible.

Using these preference levels as the primary selection criteria, the recommended DMMP was developed. In addition to the DMMP, three other alternative plans were developed for evaluation. These alternative plans are the No-Action Alternative, the Environmentally Preferred Plan, and the Base Plan. The following paragraphs briefly describe the key elements of each of these plans.

7.2 NO-ACTION ALTERNATIVE

This scenario is not a comprehensive management plan for dredged material and is not regionally supported. However, analysis of this scenario is procedurally required under NEPA and is useful for comparison purposes. Without a comprehensive and regionally supported DMMP, dredging and disposal would continue on a project-by-project basis, so long as funding and privately developed placement options allow. This type of approach does not take advantage of the economies-of-scale or the reliability inherent in any other alternative; hence, the overall cost would likely be high. This project-by-project approach would also increase concerns by Miami River businesses about the long-term reliability of maintaining their channels and berths. Concerns such as these are likely to deter investment in the region, adversely affecting the expected increase that is currently projected for Miami River's commerce. This in turn would reduce the dredging required to maintain commerce and for navigational safety, further reducing the reliability and economic viability for Miami River users. Eventually businesses would likely move out of the region, with a negative long-term effect on the economy.

Without the project, contaminated sediments would continue to be discharged into Biscayne Bay, an Outstanding Florida Water, an aquatic preserve, a National Park (at the southern reach), and a significant environmental resource. This DMMP documents the toxicity of the sediments, and the EIS and its accompanying Fish and Wildlife Coordination Act Report document adverse effects of the Miami River sediments on the Biscayne Bay ecosystem. It appears reasonable to conclude that the State of Florida and the Federal Government would not allow the unabated discharge of contaminated sediments from the Miami River to continue to degrade Biscayne Bay. If the contaminated sediments are not removed from the river, the closure of the Miami River as a port facility may be the only recourse for protecting the integrity of the Biscayne Bay ecosystem.

7.3 ENVIRONMENTALLY PREFERRED PLAN

For the Miami River DMMP, the environmentally preferred plan is for the USACE Jacksonville District to issue an RFP for dredging and disposal of sediments from the Miami River in an environmentally accepted manner, in accordance with county, state, and Federal regulations. This plan, also procedurally required under NEPA, would be based solely on environmental benefits to the estuary, without considering cost, proven reliability, or local support. This plan places primary importance upon selecting options that maximize the potential for habitat preservation/restoration and other environmentally beneficial uses.

7.4 BASE PLAN

The Base Plan, a requirement for all DMMPs (EC-1165-2-200), identifies the least costly, environmentally acceptable plan. It identifies the base cost for meeting a given objective (in this case, managing dredging material to keep the navigation channel in the Miami River open). The reader should note that while USACE regulations require the development of a Base Plan, some of the options used in the plan may never the implemented due to the preference of the region to use more beneficial or reliable options.

The base plan is to dredge the Miami River to the authorized Federal channel dimensions and dispose of the dredged material in an environmentally acceptable manner in accordance with county, state, and Federal regulations.

The local sponsor would provide an upland interim staging area and interim berthing staging area adjacent to the river. The staging areas are for unloading of dredged material and dewatering or drying of material in a confined manner. Dried material would be hauled to and disposed of at an appropriate upland landfill.

Requirements for an interim staging area include:

- 10 acres (approximate) in area
- Located near river
- Industrial/commercial land use
- Locate near transportation

At the request of the local sponsor, the interim site *cannot* be utilized for conventional diking with open-air drying. Any plan that utilizes the interim staging area must confine or cover the material during the drying process. Open-air drying would not be allowed.

The local sponsor has worked to identify and secure, through purchase or lease, various land and easements to provide the necessary interim staging area. On October 3, 2000, the Board of County Commissioners of Miami-Dade County (the Board) gave conditional approval for a former parking lot located between NW 33rd and NW 36th Streets and NW 35th and NW 37th Avenues to be utilized as the interim staging area for the dredged material (Resolution No. R-1031-00). Figure 4 is the proposed interim staging area located at the parking lot. In addition to the eight-and-one-half-acre County-owned site located at the parking lot, the County has leased a 6,880-square-foot site located in the middle of the southern portion of the parking lot to provide for the rectangular configuration of the interim staging area.

It is assumed that dredging would be performed using a mechanical dredge with clamshell bucket. Material would be placed in open-top barges and transported to the interim staging area.

The barge would be berthed near the interim upland staging area and unloaded using a hydraulic unloader, which would pump the slurry in a pipeline through a culvert under NW River Drive to the interim site.

Because the interim staging area does not have direct access to the river, it would be necessary to secure an interim berthing site to dock the barges that will hold the dredged material until it is pumped to the staging area. The local sponsor has leased approximately 25,000 sq ft of land plus 430 linear feet of Miami riverfront seawall and bulkhead located at 3700 NW North River Drive for use by the USACE for dockage and landside operations to implement the Miami River Dredging Project. This property is located in close proximity to the interim staging area. Additionally, it affords adequate dockage space for the barges that would carry the dredged material and provides direct access to arterial roadways, a rail spur, and the proposed interim staging area via an underground culvert.

The following assumptions were made by the USACE in developing the base plan cost estimate and represent the technical approach for the Miami River Dredging Project. The dredging will be accomplished using a 10-CYD clamshell dredge which will load barges and haul the dredged material to the upland staging area. A 12-inch hydraulic unloader will then pumpout the loaded barges into the upland staging area. Return water discharge will be back into the Miami River through two weirs installed during the staging area construction. Existing heavy debris located in the river within the dredging limits will be removed prior to commencing the dredging. The heavy debris will be placed in the upland staging area, then hauled to the county landfill during the staging area offloading during the subsequent dredging event.

The cost for polymer injection into the discharge line during the hydraulic unloading process to increase the settling time of the dredge material fines in the staging area is included.

The dredge material will be pumpout out of the dredge barges into Geotubes. The Geotubes will dewater the material and store it prior to final removal and hauling to the approved Dade County Class I landfill.

The dredge material disposal work is based on using Mirafi Brand GT-500 polypropylene geotubes to contain the material at the upland staging area. The use of a polymer flocculent additive to the dredge material to increase the dewatering period is also included in the base plan.

The disposal area will be lined with a landfill type impermeable polyliner. The liner will be replaced during each subsequent dredging event following the initial offloading of existing dredge disposal material from the prior event. The dredge soil will be truck hauled to the county lanfill for final disposal following the first dredging event. A tipping fee of $59 per ton for using the county landfill is included in the estimate, based on one ton per bank cubic yard of dredged material. (MCACES Gold Edition 9-9-20, *Miami River FY-02 Maintenance Dredging and Disposal, U.S. Army Corps of Engineers.)*

7.5 THE RECOMMENDED PLAN

The recommended plan is for the USACE Jacksonville District to issue a RFP for dredging and disposal of sediments from the Miami River in an environmentally accepted manner, in accordance with county, state, and Federal regulations.

8.0 IMPLEMENTING THE RECOMMENDED PLAN

8.1 IMMEDIATE NEEDS

- Submit draft DMMP/EIS
- Complete coordination with USFWS on CAR
- Receive comments on draft DMMP/EIS

8.2 MID-TERM NEEDS

- Complete and submit final DMMP/EIS
- Sign PCA with Miami-Dade County
- Prepare plans and specs.

8.3 LONG-TERM NEEDS

- Issue RFP for Innovative Technology
- Select "Best Value" and award contract
- Dredge Miami River
- Establish funding source for duration of project

8.4 SCHEDULE

• Final DMMP/EIS	November 2002
• Sign PCA	February 2003
• Prepare Plans/Specs	November 2002
• Issue RFP	February 2003
• Complete Economic Analysis	April 2003
• Award Contract	April 2003
• Commence Construction	July 2003

8.5 COST SHARING

• O&M dredging of Federal Channel	100% Federal
• Dredging outside Federal Channel	100% Non-Federal
• Interim upland staging area construction and final dredged material disposal- Federal Channel	80% Federal/20% Non-Federal
• Interim upland staging area construction and final dredged material disposal- Non-Federal Channel	100% Non-Federal
• Non-Federal Funding strategy	50% State of Florida 25% City of Miami 25% Miami-Dade County

8.6 REAL ESTATE

Real estate is a local sponsor issue. The local sponsor will acquire all land, rights-of-way, and easements necessary to complete the project.

8.7 MONITORING

Turbidity and other water quality monitoring will be required pursuant to FDEP water quality criteria where the dredged is working and at the outfall (if necessary) from the interim upland staging area. It is not known what additional monitoring may be required as a result of the RFP process.

8.8 O&M

As a direct result of approval of the Dredged Material Management Plan for the Miami River, USACE is preparing plans and specifications for O&M dredging of the Miami River in fall 2002.

8.9 LOCAL COOPERATION

Items of local cooperation are being addressed through the Project Cooperation Agreement (PCA) between the USACE Jacksonville District and Miami-Dade County to be executed shortly. See Attachment L.

9.0 CONCLUSIONS AND RECOMMENDATIONS

This DMMP for the Miami River Dredging Project defines and characterizes the materials to be dredged from the Miami River. The river has never been dredged since its construction in the 1930s and has become silted to the point that navigation is impeded. Additionally, the Miami River bottom sediments have been determined to contain heavy metal contaminants that are being flushed out to Biscayne Bay by tidal actions and storm events. The USACE Jacksonville District and the local sponsor, Miami-Dade County, have proposed to dredge the Miami River to its authorized navigation depth, thereby removing the contaminated sediments. Dredging the Miami River to the authorized Federal channel dimensions and disposal of the dredged material in an environmentally acceptable manner in accordance with county, state, and Federal regulations is the base plan.

The local sponsor will provide an upland interim staging area and interim berthing staging area adjacent to the river. The staging areas are for unloading of dredged material and dewatering or drying of material in a confined manner. Dried material will be hauled to and disposed of at an appropriate upland landfill.

At the request of the local sponsor, the interim site *cannot* be utilized for conventional diking with open-air drying. Any plan that utilizes the interim staging area must confine or cover the material during the drying process. Open-air drying will not be allowed.

The USACE is proceeding with a maintenance-dredging contract through the RFP process.

The RFP solicitation is being used more effectively to ensure the use of innovative technology for disposal of contaminated sediments, reduce impacts to the surrounding community, and capture possible cost and time savings.

10.0 GLOSSARY OF TERMS, ACRONYMS, AND ABBREVIATIONS

10.1 GLOSSARY

Ameliorate – to improve.

Appurtenant – auxiliary, accessory

Aquatic Life Criteria – standards used to compare the levels of a certain pollutant in its relationship with aquatic organisms.

Bioaccumulation – the process by which wastes and toxic chemicals gradually accumulate in living tissue.

Bioassay – method by which the strength of a substance is determined by comparing the effects on a test organism with that of a standard preparation.

Bioavailable – a form in which a chemical is can be absorbed into the tissues of an organism.

Biochemical Pathways – chemical processes within a living organism.

Biodilution – the process by which a substance is diluted in living tissue.

Biodiversity – abundance and variety of living organisms within an area.

Biomass – the total number of living organism in a particular area.

Biota – the plant and animal life of a region.

Capillary Action – water being elevated into the pores of soils above the free water table.

Carbonate Production – the ability of a soil type to produce elements such as limestone, etc.

Catalytic Converter – a device containing a catalyst for converting automobile exhaust into mostly harmless products.

Categorical Exclusion - occurs when a project will not have a significant impact on the environment or natural resources.

Type I Categorical Exclusion - occurs when a project does not lead directly to construction, etc.

Programmatic Categorical Exclusion - occurs when a project does not include adding turning lanes, roadways, upgrading guardrails, etc.

Clastic Incursions – a brief invasion of fragments of older rock.

Cold Starts - the ignition of an engine after a reasonable time for that engine to cool.

Coliforms – Bacterial indicators of sewage pollution.

Contiguous – adjacent.

Critical Habitat – specific habitat that is essential for the conservation of a species.

Endangered Species – a species identified and defined in the Federal Registry in accordance with the Endangered Species Act of 1976.

Environmental Justice - a term used to describe any disproportionately high and adverse affects of Federal agency activities and programs on minority and low-income populations within a project area.

Evapotranspiration – the total water loss from the soil.

Exacerbate – to irritate or aggravate.

Fauna – animal life.

Flora – plant life.

Flow Rate - the number of items per unit of time.

Flowage Easements - easements acquired for the right to manipulate water levels in a certain area.

Habitat Fragmentation - the splitting of natural ecosystems into smaller, isolated units.

Home Range – the area covered by the normal annual mobility of a wildlife species.

Hydroperiod – the length of time an area is inundated with water.

Indicator Species - a species that indicates any particular property of a site.

Karst Terrains – a region made up of porous limestone containing deep fissures and sinkholes.

Lithologic Units – areas of rock formations.

Lithology – the scientific study of rocks

Lithostratigraphy – rocky areas beneath the soil surface.

Methylation – to mix with methanol.

Milling – removal of an asphalt layer on a road surface by means of mechanical cutters.

National Ambient Air Quality Standard - standard air pollutant levels set forth by the Environmental Protection Agency (EPA) under the Clean Air Act.

Nonattainment - describes an area where air pollution levels persistently exceed the National Ambient Air Quality Standards (NAAQS).

Oolitic – composed of calcium carbonate.

Overtopping – when floodwaters rise above the top of a structure.

PAHs – Polynuclear aromatic hydrocarbons are often by products of petroleum processing or combustion. Some of these water insoluble compounds are highly carcinogenic at relatively low levels.

Porosity – the amount of pore space.

Prime and Unique Farmlands - land that has the best combination of physical and chemical characteristics for producing crops and/or specific high-value food (Farmland Protection Policy Act of 1991).

Passive Water Treatment Mechanism - a method of surface water treatment by collecting run-off in retention ponds or swale ditches.
Physiographic – describes the features and phenomena of nature.

Reid Vapor Pressure - a type of vapor pressure for petroleum fractions and their blends.

Semivolatile Organic Compounds (SVOCs) – a hydrocarbon that partially vaporizes when exposed to air such as DDT and chlordane.

Sequences - layers of deposit beneath the soil surface.

Sensitive Receptors - specific areas within a project area that can be directly affected by project activities such as noise levels and air contaminants.

Spatially Variable – not the same in all areas.

Specific Conductance – a measure of the electrical conductivity of dissolved ions in the water.

Spoil Area – an area where dredged or excavated soil or rock material is deposited.

Threatened Species – a species identified and defined in the Federal Registry in accordance with the Endangered Species Act of 1976.

Transmissivity – a measure of the amount of radiation propagated through a given medium.

Trichloroethylene – a nonflammable liquid used as a solvent and in dry-cleaning and removal of grease from metal.

Vinyl Chloride – a flammable gaseous carcinogenic compound used in making vinyl resins.

Volatile Organic Compounds (VOCs) – any compound of carbon that participates in atmospheric photochemical reactions such as benzene, toluene, and vinyl chloride.

Warm Starts - the ignition of an engine after the engine has been run for a given amount of time.

Watershed – the area drained by a river or river system.

10.2 ACRONYMS AND ABBREVIATIONS

ADT – average daily traffic
AFDM – ash-free dry mass
BOD - biochemical oxygen demand

C&SF - Central and Southern Florida
CAAA - Clean Air Act Amendments
CAR - Coordination Act Report
CERP - Comprehensive Everglades Restoration Plan
CO - carbon monoxide
cpu - color photometric units
CWA - Clean Water Act
DERM - Department of Environmental Resources Management
DO - dissolved oxygen
DOC - dissolved organic carbon
DSL - design service life
EIS - environmental impact statement
EMO - Environmental Management Office
ENP - Everglades National Park
EO - Executive Order
FAC - Florida Administrative Code
FAC - Florida Archaeological Council
FDEP - Florida Department of Environmental Protection
FDHR - Florida Division of Historical Resources
FDOT - Florida Department of Transportation
FFWCC - Florida Fish and Wildlife Conservation Commission
FHWA - Federal Highway Administration
ft - feet
GDM - general design memorandum
g/sqm/d – grams per square meter per day
GRR - general reevaluation report
HTRW - hazardous, toxic, and radiological waste
L-67 ext - extension of Levee 67
LOS - level of service
MPO – Metropolitan Planning Organization
MWD - Modified Water Deliveries
NAAQS - National Ambient Air Quality Standards
NAPLs - non-aqueous phase liquids
NEPA - National Environmental Policy Act
NESRS - Northeast Shark River Slough
mg - milligrams
NH_3 - ammonia nitrogen
NHPA - National Historic Preservation Act
NO_2 NO_3 - nitrate-nitrite
NO_x - oxides of nitrogen
NPL - National Priority List
NPS - National Park Service
NRHP - National Registry of Historic Places
NTU – Nephlometric Turbidity Unit
NVGD – National Vertical Geodetic Datum
OMRR&R - Operation, Maintenance, Repair, Replacement, and Rehabilitation
OP - ortho-phosphorus
PAHs - polycyclic aromatic hydrocarbons
PCBs - polychlorinated biphenyls

PD&E Manual - Project Development and Environment Manual
ppm – parts per million
RCRA - Resource Conservation and Recovery Act
ROPA - Register of Professional Archaeologists
RPA - Reasonable and Prudent Alternatives
S-12s - Structure 12s
SEIS - supplemental environmental impact statement
SFWMD - South Florida Water Management District
SHPO - State Historic Preservation Office
SVOCs - semivolatile organic compounds
SWIM - surface water improvement management
TBT - tributyltin
TCE - trichloroethylene
TDS - total dissolved solids
TKN - total Kjeldahl nitrogen
TMDLs - total maximum daily loads
TP - total phosphorus
TSS - total suspended solids
USACE - U.S. Army Corps of Engineers
USEPA – U.S. Environmental Protection Agency
USFWS - U.S. Fish and Wildlife Service
USGS - U.S. Geological Survey
UST - underground storage tank
VOC - volatile organic carbon
VOCs - volatile organic compounds
vpd - vehicles per day
vph – vehicles per hour
WCA-3A - Water Conservation Area 3A
WCA-3B - Water Conservation Area 3B

11.0 LIST OF ATTACHMENTS

Attachment A: MIAMI RIVER 1934 “AS-BUILTS”

Attachment B: QUALITY CONTROL PLAN

Attachment C: MIAMI RIVER COMMISSION - DREDGE WORKING GROUP – MINUTES

Attachment D: ENVIRONMENTAL IMPACT STATEMENT

Attachment E: TOXICITY CHARACTERISTIC RULE, SUBTITLE C, RCRA – MAXIMUM CONCENTRATION OF CONTAMNANTS FOR TOXICITY CHARACTERISTIC AS DETERMINED USING TCLP AND

DADE COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT (DERM) SOIL DISPOSAL CRITERIA AND CLEAN SOIL CRITERIA/CLEAN BACKFILL CRITERIA

Attachment F: MIAMI RIVER CORE BORINGS AND LABORATORY ANALSIS

Attachment G: CORE BORING LOGS MIAMI RIVER INTERIM UPLAND STAGING AREA – PARKING LOT

Attachment H: REQUEST FOR INFORMATION AND BRIEF SUMMARY OF INDUSTRY INPUT

Attachment I: SURVEY PLAT FOR INTERIM UPLAND STAGING AREA

Attachment J: 1999 HYDROGRAPHIC SURVEY OF MIAMI RIVER

Attachment K: PUBLIC COORDINATION OF THE DOCUMENT

Attachment L: REQUIRED ITEMS OF LOCAL COOPERATION

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